WHAT IS CLAIMED IS:

1. A method of merging segments to form supersegments in an image, wherein said image consists of a plurality of segments that are constituent portions of the image, the method comprising:

identifying at least one candidate segment(s);

identifying at least one neighboring segment(s) for each candidate segment;

computing an error statistic for each pair, wherein each pair consists of a candidate segment and a corresponding neighboring segment;

determining a neighboring segment that results in a smallest error statistic for a given candidate segment;

determining whether said smallest error statistic is sufficiently small to merit merging of the corresponding pair of segments; and

merging said corresponding pair of segments to create one supersegment, wherein a supersegment is a new segment comprising all pixels formerly contained in one of the two segments that were merged.

2. The method of claim 1, wherein said error statistic is computed using one or more merging parameters selected from the group consisting of a difference in mean color between the two segments, a difference in color variance between the two segments, a measure of a color gradient along a common boundary between the two segments, a length of the common boundary, a total length of a boundary of the candidate segment, an area of the candidate segment, and an area of the neighboring segment.

3. The method of claim 1, wherein the error statistic for a pair consisting of a candidate segment and a neighboring segment is set above the threshold value if the common boundary between the segments is smaller than a cutoff percentage of the total boundary length of the candidate segment.

4. The method of claim 1, wherein the error statistic for a pair consisting of a candidate segment and a neighboring segment is set above the threshold value if the area of the neighboring segment is smaller than the area of the candidate segment.

5. The method of claim 1, wherein the threshold value varies according to the size of the candidate segment.

6. The method of claim 1, further comprising a tiebreak criterion in the case when more than one neighboring segment is sufficiently close to the minimum error statistic, said tiebreak criterion selecting the one of said neighboring segments that has smallest area.

7. The method of claim 1, wherein multiple neighboring segments are merged with a candidate segment wherein each of the neighboring segment's error statistic is below the threshold value.

8. The method of claim 1, wherein the error statistic E for a pair of segments is computed according to the formula $E = \Delta c \cdot \Delta G$, wherein ΔG is a measure of the gradient along the boundary between the segments and Δc is a measure of the difference in mean color and color variance between the segments.

9. The method of claim 8, wherein:

$\Delta c = \Delta m_y \Delta v_y + \Delta m_u \Delta v_u + \Delta m_v \Delta v_v$, wherein Δm is a measure of the difference between the mean intensity values for the candidate and neighboring segments, wherein Δv is a measure of the difference between the variances of intensity values for the candidate and neighboring segments, and wherein the subscripts y, u, v denote the Y, U, and V color components, respectively;

$G = w_y g_y + w_u g_u + w_v g_v$, wherein each of g_y, g_u, and g_v are local color gradients (in the Y, U, and V color components) at a single boundary edge and w_y, w_u, and w_v are weights; and

ΔG is found by taking the medians of the G values at every n consecutive edges of the common boundary and then taking the mean of this collection of median values.

10. The method of claim 1, wherein one or more of the merging parameters are calculated in a neighborhood of the common boundary between the candidate segment and the neighboring segment.

11. The method of claim 10, wherein said neighborhood of the common boundary consists of a fixed number of pixels on either side of and perpendicular to each boundary edge.

12. The method of claim 10, wherein said merging parameters are calculated during a raster-scan through an array of pixels and stored in a table, and wherein said merging parameters are updated whenever two or more segments are merged to form a supersegment to correct the values for the new supersegment and its neighboring segments,

whereby merging decisions for a plurality of candidate segments may be made by referring to the data contained in said table.

13. The method of claim 1 wherein one or more of the merging parameters are calculated using only the pixels in the neighboring segment which lie within an extended bounded box around the candidate segment.

14. An apparatus for merging segments to form supersegments in an image, wherein said image consists of a plurality of segments that are constituent portions of the image, the apparatus being configured to: identify at least one candidate segment(s); identify at least one neighboring segment(s) for each candidate segment; compute an error statistic for each pair, wherein each pair consists of a candidate segment and a corresponding neighboring segment; determine a neighboring segment that results in a smallest error statistic for a given candidate segment; determine whether said smallest error statistic is sufficiently small to merit merging of the corresponding pair of segments; and merge said corresponding pair of segments to create one supersegment, wherein a supersegment is a new segment comprising all pixels formerly contained in one of the two segments that were merged.

15. The apparatus of claim 14, wherein the apparatus is embodied in a computer that includes a CPU and memory and a specifically-designed application program.

16. The apparatus of claim 14, wherein the apparatus is embodied in a specifically-designed hardware device, including both processing and memory circuitry.